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Boerboel **I**nternational **G**enetic **S**creening

CERTIFICATE

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Name dog : Bavana`S Pride Hexia
Registrationnumber : 201200573
MicroChipnumber : 528210002749091
Date of birth : 19-01-2012
Gender : Female

Owner : Sophie & Mats Freier & Carlsson
Address : Trälket 11
Town : Töreboda
Country : Sweden

B.I.G.S. (***B***oerboel ***I***nternational ***G***enetic ***S***creening) results:

Disorder	**Result**
Canine Multifocal Retinopathy 1 (CMR1), Eye disorder.	Carrier
Neurological disorders	
L-2-Hydroxyglutaric aciduria (L2HGA); mutation 1	Free
L-2-Hydroxyglutaric aciduria (L2HGA); mutation 2 originally found in Staffordshire Bull Terrier	Free
Neonatal Encephalopathy with Seizures (NEWS)	Free
Cerebellar abiotrophy or neonatal cerebellar cortical degeneration (NCCD)	Free
Polyneuropathy; mutation originally found in Alaskan Malamute	Free
Bandera's Neonatal Ataxia (BNAt)	Unknown
Progressive early-onset cerebellar ataxia; mutation originally found in Finnish Hound	Unknown
Benign Familial Juvenile Epilepsy or Remitting Focal Epilepsy	Free
Polyneuropathy; mutation originally found in Greyhound	Free
Neuronal Ceroid Lipofuscinosis 1 (NCL1)	Free
Neuronal Ceroid Lipofuscinosis, type 12, mutation originally found in Tibetan terrier	Free
Neuronal Ceroid Lipofuscinosis 10 (NCL10)	Free
Neuronal Ceroid Lipofuscinosis 2 (NCL2)	Unknown
Neuronal Ceroid Lipofuscinosis 4A (NCL4)	Unknown
Neuronal Ceroid Lipofuscinosis 5 (NCL5)	Unknown
Neuronal Ceroid Lipofuscinosis 6 (NCL6)	Free
Fetal-onset Neuroaxonal Dystrophy (FNAD)	Free
L-2-hydroxyglutaric Aciduria (L2HGA), Yorkshire Terrier mutation	Unknown
Bandera's Neonatal Ataxia (BNAt)	Free
Alaskan Husky Encephalopathy (AHE)	Unknown
Neuronal Ceroid Lipofuscinosis 8 (NCL8)	Free
Neuronal Ceroid Lipofuscinosis 8 (NCL8), rare variant	Free
Spinocerebellar ataksia (SCA); mutation originally found in Parson Russell Terrier	Free
Shaking Puppy (X-linked Generalized Tremor); mutation originally found in English Springer Spaniel	Free
Hypomyelination and Tremor; mutation originally found in Weimaraner	Free
Lagotto Storage Disease	Free
Spinocerebellar ataxia with myokymia and/or seizures	Free
Eye disorders	
Collie Eye Anomaly (CEA)	Unknown
Cone-rod Dystrophy 1 (cord1-PRA)	Free
Congenital Stationary Night Blindness (CSNB)	Unknown
Autosomal Dominant Progressive Retinal Atrophy (ADPRA)	Free
Golden Retriever Progressive Retinal Atrophy 1 (GR_PRA 1)	Free
Primary Hereditary Cataract (PHC); mutation originally found in Australian Shepherd	Free
Primary Lens Luxation (PLL)	Free
Rod-Cone Dysplasia 1 (rcd1); mutation originally found in Irish Setter	Free

Rod-Cone Dysplasia 1a (rcd1a); mutation originally found in Sloughi	Free
Rod-Cone Dysplasia 3 (rcd3)	Free
X-Linked Progressive Retinal Atrophy 1 (XLPRA1)	Free
Cone-rod dystrophy (crd SWD); mutation originally found in Standard Wire-haired Dachshund	Free
Primary Open Angle Glaucoma; mutation originally found in Beagle	Free
Achromatopsia or Cone Degeneration (CD); mutation originally found in German Shorthaired Pointer	Free
OSD2 (Oculoskeletal Dysplasia 2) or DRD2 (Dwarfism-Retinal Dysplasia 2)	Unknown
Canine Multifocal Retinopathy 3 (cmr3); mutation originally found in Lapponian Herder	Free
Canine Multifocal Retinopathy 2 (cmr2); mutation originally found in Coton de Tulear	Free
Generalized Progressive Retinal Atrophy; mutation originally found in Schapendoes	Free
Golden Retriever Progressive Retinal Atrophy 2 (GR_PRA 2)	Unknown
Early Retinal Degeneration; mutation originally found in Norwegian Elkhound	Free
Primary Hereditary Cataract (PHC); mutation originally found in Terriers	Unknown
Progressive Retinal Atrophy (PAP1_PRA); mutation originally found in Papillon and Phalene	Free
Progressive Retinal Atrophy - adult onset; mutation originally found in Basenji	Free
Progressive Retinal Atrophy (PRA), type III; mutation originally found in Tibetan Spaniel and Tibeta	Free
Cone-Rod Dystrophy 2 (crd2); mutation originally found in Pit Bull Terrier	Free
Glaucoma; mutation originally found in Norwegian Elkhound	Free
PRA Progressive Retinal Atrophy; Swedish Vallhund marker test	Free
X-Linked Progressive Retinal Atrophy 2 (XLPRA2)	Unknown
Achromatopsia or Cone Degeneration (CD); CNGB3 gene deletion	Free
Cone-Rod Dystrophy 1 (crd1); mutation originally found in American Staffordshire Terrier	Free

Neuromuscular disorders

Degenerative Myelopathy (DM)	Unknown
Exercise-Induced Collapse (EIC)	Unknown
Globoid Cell Leukodystrophy (GLD) or Krabbe's disease, Terrier mutation	Free
Alpha Fucosidosis	Unknown
Globoid Cell Leukodystrophy (GLD) or Krabbe's disease; mutation originally found in Irish Setter	Unknown
GM1 Gangliosidosis; mutation originally found in Portuguese Water Dog	Free
GM1 Gangliosidosis; mutation originally found in Alaskan Husky	Free
GM1 Gangliosidosis; mutation originally found in Shiba Dog	Free
Episodic falling (EF)	Free
GM2 Gangliosidosis	Free
Hyperekplexia or Startle Disease	Free
GM2 Gangliosidosis, mutation originally found in Japanese Chin	Free
Congenital Myasthenic Syndrome (CMS)	Free
Globoid Cell Leukodystrophy (GLD) or Krabbe's disease; mutation originally found in Irish Setter	Free

Metabolic disorders

Glycogen Storage Disease, type IIIa (GSDIIIa)	Free
Mucopolysaccharidosis Type VII (MPSVII); mutation originally found in Brazilian Terrier	Free
Pyruvate Dehydrogenase Deficiency	Free
Glycogen Storage Disease, type II or Pompe's disease	Free
Glycogen Storage Disease, Type Ia (GSDIa)	Free
Mucopolysaccharidosis Type I (MPSI)	Unknown
Mucopolysaccharidosis Type IIIA (MPSIIIA); mutation originally found in Dachshund	Free
Mucopolysaccharidosis Type IIIA (MPSIIIA); mutation originally found in New Zealand Huntaway	Unknown
Mucopolysaccharidosis Type VI (MPSVI); mutation originally found in Poodle	Unknown
Hypocatalasia or Acatalasemia	Free
Mucopolysaccharidosis Type VII (MPS VII); mutation originally found in German Shepherd	Free
Imerslund-Gräsbeck Syndrome (IGS) or Intestinal cobalamin malabsorbtion; mutation originally four	Free
Imerslund-Gräsbeck Syndrome (IGS) or Intestinal cobalamin malabsorbtion; mutation originally four	Free
Mucopolysaccharidosis Type IIIA (MPS IIIA); mutation originally found in New Zealand Huntaway	Free

Blood disorders

Canine Cyclic Neutropenia (Gray Collie Syndrome)	Free
Trapped Neutrophil Syndrome (TNS)	Free
Von Willebrand's Disease (vWD) Type III; mutation originally found in Kooikerhondje	Unknown
Canine Leukocyte Adhesion Deficiency (CLAD), type I	Unknown
May-Hegglin Anomaly (MHA)	Free
Factor IX Deficiency or Haemophilia B; mutation originally found in Lhasa Apso	Unknown
Factor IX Deficiency or Haemophilia B, Gly379Glu mutation	Free
Pyruvate Kinase Deficiency of Erythrocyte; mutation originally found in West Highland White Terrie	Free
Glanzmann Thrombasthenia (GT), Type I; mutation originally found in Pyrenean Mountain Dog	Free
Glycogen Storage Disease VII or Hereditary Phosphofructokinase (PFK) Deficiency	Free
Bleeding disorder due to P2RY12 defect	Free
Von Willebrand's Disease (vWD) Type III; mutation originally found in Shetland Sheepdog	Unknown

Factor VII Deficiency	Free
Factor VIII deficiency or Haemophilia A; mutation originally found in German Shepherd	Free
Pyruvate Kinase Deficiency of Erythrocyte; mutation originally found in Labrador Retriever	Free
Pyruvate Kinase Deficiency of Erythrocyte; mutation originally found in Pug	Free
Pyruvate Kinase Deficiency of Erythrocyte; mutation originally found in Beagle	Free
Canine Leucocyte Adhesion Deficiency (CLAD), type III	Free
Factor IX Deficiency or Haemophilia B; mutation originally found in Rhodesian Ridgeback	Free
Factor IX Deficiency or Haemophilia B; mutation originally found in Airedale Terrier	Unknown
Factor IX Deficiency or Haemophilia B; mutation originally found in German Wirehaired Pointer	Unknown
Pyruvate Kinase Deficiency of Erythrocyte; mutation originally found in Basenji	Free
Pyruvate Kinase Deficiency of Erythrocyte; mutation originally found in West Highland White Terrie	Unknown
Von Willebrand's Disease (vWD) Type II	Unknown
Congenital Macrothrombocytopenia; disease-linked SNP originally found in Norfolk and Cairn Terrier	Free
Thrombopathia; mutation originally found in Basset Hound	Free
Thrombopathia; mutation originally found in Landseer	Free
Thrombopathia; mutation originally found in Eskimo Spitz	Free
Prekallikrein Deficiency	Free
Elliptocytosis	Free
Factor VIII deficiency or Haemophilia A; p.Cys548Tyr mutation originally found in German Shepherd	Free
Factor VIII deficiency or Haemophilia A; mutation originally found in Boxer	Free
Von Willebrand's Disease (vWD) Type III; mutation originally found in Scottish Terrier	Unknown
Von Willebrand's Disease (vWD) Type I	Unknown

Kidney disorders

Autosomal Recessive Hereditary Nephropathy (ARHN); mutation originally found in English Cocker S	Unknown
Hyperuricosuria and Hyperuricemia (HUU) or Urolithiasis. Kidney disorder.	Free
Primary hyperoxaluria (PH); mutation originally found in Coton de Tulear	Free
X-linked Hereditary Nephropathy (XLHN)	Free
Autosomal Recessive Hereditary Nephropathy (ARHN); mutation originally found in English Springer	Unknown
Polycystic Kidney Disease (PKD)	Free
Cystinuria, Type II-B; mutation originally found in Miniature Pinscher	Free
Renal Cystadenocarcinoma and Nodular Dermatofibrosis (RCND)	Free
Cystinuria; mutation originally found in Newfoundland Dog	Free
Cystinuria, Type II-A; mutation originally found in Australian Cattle Dog	Free
Protein Losing Nephropathy; NPHS1 gene variant	Unknown
Protein Losing Nephropathy; KIRREL2 gene variant	Unknown

Other disorders

Malignant Hyperthermia (MH)	Free
Ivermectin sensitivity (MDR1)	Unknown
Narcolepsy; mutation originally found in Dobermann	Free
Primary Ciliary Dyskinesia (PCD)	Free
Congenital Keratoconjuctivitis Sicca and Ichthyosiform Dermatosis (CKCSID) or Dry Eye Curly Coat	Free
Gallbladder Mucocele Formation	Unknown
Persistant Mullerian Duct Syndrome (PMDS), mutation originally found in Miniature Schnauzer	Free
Narcolepsy; mutation originally found in Labrador Retriever	Free
Narcolepsy; mutation originally found in Dachshund	Free
Autosomal Recessive Amelogenesis Imperfecta (ARAI)	Free
Hereditary Nasal Parakeratosis (HNPK)	Unknown
Cleft palate; mutation originally found in Nova Scotia Duck Tolling Retriever, reverse assay	Unknown

Muscular disorders

Muscular Dystrophy, Duchenne type or Golden Retriever Muscular Dystrophy (GRMD)	Free
Myotonia; mutation originally found in Miniature Schnauzer	Free
Cavalier King Charles Spaniel Muscular Dystrophy (CKCS-MD)	Free
Duchenne-like Muscular Dystrophy, Pembroke Welsh Corgi-type	Unknown
Myotubular Myopathy 1 or X-linked Myotubular Myopathy	Free
Centronuclear Myopathy; mutation originally found in Great Dane	Free
Myotonia; mutation originally found in Australian Cattle Dog	Free
Centronuclear Myopathy; mutation originally found in Labrador Retriever	Free
Cerebellar ataxia; mutation originally found in Old English Sheepdog and Gordon Setter	Free

Immunological disorders

ARSCID (Autosomal Recessive Severe Combined Immunodeficiency)	Unknown
X-linked Severe Combined Immunodeficiency (XSCID); mutation originally found in Basset Hound	Free
X-linked Severe Combined Immunodeficiency (XSCID); mutation originally found in Cardigan Welsh	Free
C3 deficiency	Free
Severe Combined Immunodeficiency (SCID); mutation originally found in Frisian Water Dog	Free

Autosomal Recessive Severe Combined Immunodeficiency (ARSCID)	Free

Skeletal disorders

Osteogenesis imperfecta (OI) or Brittle Bone Disease; mutation originally found in Dachshund	Free
Chondrodysplasia (dwarfism); mutation originally found in Norwegian Elkhound and Karelian Bear Dc	Free
Skeletal Dysplasia 2 (SD2)	Free
Craniomandibular Osteopathy (CMO)	Free
Hereditary Vitamin D-Resistant Rickets (HVDRR)	Free
Osteogenesis imperfecta; mutation originally found in Golden Retriever	Free
Oculoskeletal Dysplasia 2 or Dwarfism-Retinal Dysplasia 2	Free
Osteogenesis imperfecta; mutation originally found in Beagle	Unknown
Osteochondrodysplasia, mutation originally found in Miniature Poodle	Unknown

Skin disorders

Golden Retriever Ichtyosis	Unknown
Anhidrotic Ectodermal Dysplasia or X-linked Ectodermal Dysplasia (XHED)	Unknown
Musladin-Lueke syndrome (MLS)	Free
Lamellar Ichthyosis (LI)	Unknown
Epidermolysis bullosa, dystrophic	Free
Epidermolytic Hyperkeratosis or Ichthyosis in Norfolk Terrier	Free
Ectodermal dysplasia or Skin Fragility Syndrome (ED-SFS)	Unknown
Lamellar Ichthyosis (LI)	Free
Anhidrotic Ectodermal Dysplasia or X-linked Ectodermal Dysplasia (XHED)	Free
Epidermolysis bullosa, dystrophic	Unknown
Hereditary Footpad Hyperkeratosis (HFH)	Free

Cardiological disorders

Dilated Cardiomyopathy. DCM. Heart disorder.	Free

Endocrine disorders

Hypothyroidism; mutation originally found in Tenterfield Terrier	Unknown
Hypothyroidism; mutation originally found in Toy Fox- and Rat Terrier	Free

Unknown: New test per 01-06-2015 or future test. (Not result yet)

For all your questions about **DNA** go to the BI **--SUPPORT / HELPDESK-- !!!**
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Sonia Morgan, Chairperson

BOERBOEL INTERNATIONAL
"Because there is more to a Boerboel than just good looks !